A.D. 1882, 22*nd* SEPTEMBER. N° 4523.

Malted Farinaceous Food.

Drawing

LETTERS PATENT to Julius Schweitzer of Loughborough Park Brixton in the County of Surrey for an Invention of IMPROVEMENTS IN THE MANUFACTURE OF MALTED FARINACEOUS FOOD FOR INFANTS AND INVALIDS

PROVISIONAL SPECIFICATION left by the said Julius Schweitzer at the Office of the Commissioners of Patents on the 22nd September 1882.

JULIUS SCHWEITZER of Loughborough Park Brixton in the County of Surrey "IMPROVEMENTS IN THE MANUFACTURE OF MALTED FARINACEOUS FOOD FOR INFANTS AND INVALIDS"

The Invention has for its object improvements in the manufacture of Malted farinaceous food for Infants and Invalids

For this purpose I subject the flour, while baking, to the action of steam introduced into the oven by means of a pipe so that the steam comes into actual contact with the baking flour.

Previous however to treating the flour in the manner above described I according to my present Invention mix it with a small per centage of acid, either phosphoric, hydrochloric, citric, tartaric or other suitable acid.

The combined action of heat in the oven, steam and acid facilitate materially the baking of the flour and the breaking up of the starch granules.

The acid after the flour is baked is removed or neutralized in the flour by the addition of soda, potash or other alkali suitable to the acid used, and the flour baked and prepared as above is afterwards mixed with malt flour and converted in the usual way into a self digesting food for Infants and Invalids.

[*Price* 6*d*.]

SPECIFICATION in pursuance of the conditions of the Letters Patent filed by the said Julius Schweitzer in the Great Seal Patent Office on the 21st March 1883.

JULIUS SCHWEITZER of Loughborough Park Brixton in the County of Surrey "IMPROVEMENTS IN THE MANUFACTURE OF MALTED FARINACEOUS FOOD FOR INFANTS AND INVALIDS"

The invention has for its object improvements in the manufacture of malted farinaceous food for Infants and Invalids.

For this purpose I as heretofore subject the flour while baking to the action of steam introduced into the oven by means of a pipe so that the steam comes in actual contact with the baking flour.

Previous however to treating the flour in the manner above described I according to my present invention mix it with a small per centage of acid, either phosphoric hydrochloric, citric, tartaric or other suitable acid.

The combined action of heat steam and acid facilitate materially the baking of the flour and the breaking up of the starch granules.

The acid after the flour is baked is removed or neutralized in the flour by the addition of soda, potash or other alkali suitable to the acid used.

I will now proceed to describe the method and apparatus I employ in carrying out the above manufacture.

The oven I use (but which however I do not claim as part of my present invention) is of iron, the bottom and top of the oven consist of steam jackets, it is twelve feet broad six feet deep and eighteen inches high and holds for one baking, usually three sacks of flour or $7\frac{1}{2}$ hundred weight, it is however preferable to bake a smaller quantity (say one sack) at a time as the heat and steam penetrate and act more readily on a thinner layer of flour. When the oven is hot and the pressure of steam in the jackets is from 10 to 20 pounds to the square inch, I allow the steam to enter the oven by means of a pipe and tap, the pipe enters the oven near the upper portion and preferably branches into a number of pipes which conduct the steam to the sides and back of the oven and spread the steam uniformly all over the top of the flour so as to fill in fact all the space left vacant between the flour and the top jacket of the oven with an atmosphere of heated steam, the oven though not steam tight should confine the steam as much as possible.

During the baking of the flour the steam in the jackets is caused gradually to rise to a pressure of about 35 to 40 pounds to the square inch.

About every half hour during the baking process I turn the steam off and turn the flour well over which when baking large quantities of flour at a time, is necessary to ensure that the steam may be thoroughly diffused amongst the flour and permeate and come into contact with every particle of it, and in order to prevent the said steam from introducing into the oven any condensed water. I conduct the steam first into a small vessel *a*, such as that represented in the accompanying drawing in elevation at Figure 1 and in plan at Figure 2.

This vessel is about 18 inches high and capable of holding about 2 gallons. The steam enters this vessel near the bottom thereof at *b* and is thence conducted into the oven by a pipe fixed near the top of the vessel at *c*.

The condensed water is occasionally removed from the said vessel by means of a tap at *d*. The steam so introduced into the heated oven does not make the flour pasty as would be the case if the condensed water were not removed from the steam previous to its introduction into the oven but causes the flour to become simply somewhat clammy, this assists in conducting the heat right through the

mass of flour and in breaking the starch granules without either scorching or unduly wetting the baking flour. The acid mixed with the raw flour effects a more ready and more perfect baking, any kind of acid will effect this object, but for the purpose of the present invention that is to say for the production of an article of diet, I have found powdered tartaric acid most convenient, I use about 2 pounds of tartaric acid to each sack of flour containing 280 pounds of flour, the higher the temperature at which the steam is introduced and the flour baked, the smaller is the amount of acid required to be used while at a comparatively low temperature and when a large quantity of flour is baked at a time rather more acid is required to produce the desired effect.

When the flour (say three sacks) is baked in the manner above described which at a temperature gradually rising to from about 300 to 330 degrees Fahrenheit takes about 6 hours while for a smaller quantity it takes less time, the flour is dried and mixed with about one third its weight of malt flour and for every pound of acid used in the baking I add about 20 ounces of bicarbonate of potash which converts the tartaric acid into a harmless and pleasant cream of tartar.

Having thus described the nature of my said Invention and the mode in which I carry the same into effect I would have it understood that I lay no claim to the oven or other apparatus used nor to the introduction of steam into the oven But what I claim as my invention of improvements in the manufacture of malted farinaceous food is

First. Mixing an acid with the raw flour to assist the baking operation and improve the result substantially as herein described

Second. Adding to flour baked as herein described and mixed with malt flour a certain proportion of an alkali suitable to the acid used substantially as herein described and for the purpose stated.

In witness whereof I the said Julius Schweitzer have hereunto set my hand and seal this Twentieth day of March in the year of our Lord One thousand eight hundred and eighty three.

J. SCHWEITZER. (L.S.)

LONDON: Printed by GEORGE E. B. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.

1883.